

CLAIMS

What is claimed is:

1. A mounting apparatus for a display panel having a single alignment edge, the display panel including an imaging area comprising:
 - 5 a housing having a display opening; and
 - a display alignment device coupled to the housing, the display alignment device capable of aligning the imaging area of the display panel with the display opening of the housing based on the single alignment edge.
2. The mounting apparatus of claim 1 wherein the display alignment device aligns
 - 10 the imaging area within a tolerance of 2° with respect to alignment with the display opening.
3. The mounting apparatus of claim 1 comprising a light source attached to the housing for illuminating the imaging area.
4. The mounting apparatus of claim 3 wherein the light source comprises a light
 - 15 emitting diode (LED).
5. The mounting apparatus of claim 4 wherein the LED emits a blue light through a phosphor coating to generate a white light.
6. The mounting apparatus of claim 3 wherein the light source comprises a light pipe.
- 20 7. The mounting apparatus of claim 3 wherein the light source comprises a first diffuser and a second diffuser.

8. The mounting apparatus of claim 1 further comprising a lens mounted to the housing, the lens positioned adjacent to the display opening.
9. The mounting apparatus of claim 8 wherein the lens comprises a torro lens.
10. The mounting apparatus of claim 1 further comprising a lateral securing portion, the lateral securing portion laterally compressing the alignment edge of the display panel against the display alignment device to align the imaging area with the display opening.
11. The mounting apparatus of claim 10 wherein the lateral securing portion comprises a spring and ramp combination.
- 10 12. The mounting apparatus of claim 1 further comprising a vertical securing portion, the vertical securing portion vertically compressing the display panel within the housing.
13. The mounting apparatus of claim 1 wherein the display alignment device comprises a registration edge within the housing of the assembly, the registration edge in communication with at least one alignment edge of the display panel such that the interface between the alignment edge and the registration edge aligns the imaging area with the display opening.
14. A display assembly comprising:
 - a housing having a display opening;
 - 20 a display panel mounted within the housing, the display panel having an imaging area positioned in optical alignment with the display opening; and
 - a display alignment device coupled to the housing, the display alignment device capable of aligning the imaging area with the display opening.

15. The display assembly of claim 14 wherein the display alignment device aligns the imaging area within a tolerance of 2° with respect to the alignment of the display opening.
16. The display assembly of claim 14 comprising a light source coupled to the housing for illuminating the imaging area.
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17. The display assembly of claim 16 wherein the light source comprises a light emitting diode (LED).
18. The display assembly of claim 16 wherein the LED emits a blue light through a phosphor coating to produce a white light.
- 10 19. The display assembly of claim 16 wherein the light source comprises a light pipe.
20. The display assembly of claim 16 wherein the light source comprises a first diffuser and a second diffuser mounted to the housing.
21. The display assembly of claim 14 further comprising a lens mounted to the housing, adjacent to the display opening.
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22. The mounting apparatus of claim 21 wherein the lens comprises a torro lens.
23. The mounting apparatus of claim 14 further comprising a lateral securing portion, the lateral securing portion laterally compressing the alignment edge of the display panel against the display alignment device to align the imaging area with the display opening.
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24. The mounting apparatus of claim 23 wherein the lateral securing portion comprises a spring and ramp combination.
25. The mounting apparatus of claim 14 further comprising a vertical securing portion, the vertical securing portion vertically compressing the display panel within the housing.
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26. The display assembly of claim 14 wherein the display alignment device comprises a registration edge within the housing of the assembly, the registration edge in communication with at least one alignment edge of the display panel such that the interface between the alignment edge and the registration edge aligns the imaging area with the display opening.
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27. The display assembly of claim 14 wherein the display panel comprises a carrier.
28. The display assembly of claim 14 further comprising an optically transparent spacer coupled to the display panel, the spacer providing alignment of the imaging area with respect to an optic element.
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29. The display assembly of claim 28 wherein the optically transparent spacer is coupled to a viewer side surface of the display panel.
30. The display assembly of claim 28 wherein the optically transparent spacer is coupled to a backlight side surface of the display panel.
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31. The display assembly of claim 28 wherein the optically transparent spacer comprises a polarizer.
32. A method for assembling a display assembly comprising:

placing a display within a housing having a display alignment device; engaging the display alignment device; and aligning an active area of the display with a display opening of the housing.

- 5 33. The method of claim 32 further comprising coupling a light source to the housing.
34. A display system comprising:
a carrier having at least one alignment edge, the carrier defining a display opening;
- 10 a display mounted within the carrier between the first polarizer and the second polarizer such that the display is positioned at a first distance from the first polarizer and positioned at a second distance from the second polarizer, the display having a first perimeter edge with a non-jagged surface in communication with the alignment edge of the carrier where the interface between the first perimeter edge of the display and the alignment edge of the carrier aligns an active area of the display with a display opening of the carrier; and
- 15 an optically transparent spacer coupled to the display, the spacer providing alignment of the display with respect to an optic element.
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